REMARKS

This is in response to the Office Action mailed on July 25, 2005. Claims 1-32 were pending in the application and the Examiner rejected all claims. With this amendment, claims 1, 7, 8, 11, 17 and 32 are amended, claims 2-6 and 10 are canceled and the remaining claims are unchanged in the application.

At the top of page 2 of the Office Action, the Examiner objected to claims 3 and 7 based on informalities. Claim 3 has been canceled and Applicant has amended claim 7 in accordance with the Examiner's suggestion. Therefore, Applicant submits that the claims are in proper form.

On pages 2-12 of the Office Action, the Examiner rejected claims 1-5, 7-11, 14, 17,-23, 25, 26, 28, 29 and 32 under 35 U.S.C.§103(a) as being unpatentable over Gavalda et al. (Growing Semantic Grammars) in view of Wang (a Robust Parser for Spoken Language Understanding). Applicant respectfully traverses the Examiner's rejection.

Of the rejected claims, claims 1, 17, 20, 25 and 32 are independent claims. Applicant respectfully submits that the combination of references cited by the Examiner fails to teach or suggest these claims.

Claim 1 has been amended to include the limitations of original claims 2 and 10. Claim 1 thus includes generating a semantic schema for an application, generating a template grammar based on the semantic schema, and building a learned CFG by parsing training expressions using the template grammar, "by obtaining a training expression; parsing the training expression to produce a parse result; displaying an abstraction of the parse result; and receiving a correction input, indicative of a direct user correction of the parse result." Applicant submits that this is neither taught nor suggested by the combination of references cited by the Examiner.

The Examiner cited §3.2.1 of Gavalda et al. as meeting these limitations. However, Gavalda et al. does not provide an

abstraction of the parse result to the user, for user correction. In other words, in Gavalda et al., the user simply indicates that the parse is correct or not. If the parse is not correct, the system presents "to the end user… questions about, or rephrases of, the original utterance." See §3.2.1. This is further described in §3.2.2, in the paragraph numbered 1, and it is shown in FIG. 5. In that portion of Gavalda et al., the user is asked whether two phrases are similar. This is certainly not the same as presenting an abstraction of the parse result for user correction, and then "receiving a correction input, indicative of a direct user correction to the abstraction of the parse result." Rather, Gavalda et al. is asked some questions about the original utterance, and the system itself attempts to correct the parse results, and any abstraction of the parse results, without any direct input from the user as to how to correct the abstraction of the parse result.

More specifically, FIG. 9 of the present application, and the corresponding description, illustrates how one example of the system displays the parse relative to the schema. FIG. 9 also shows how the user can very easily provide a user input by dragging and dropping different portions of the parsed utterance relative to portions of the schema, in order to quickly correct the parse by annotating the parsed utterance against the schema. This is simply neither taught nor suggested by Gavalda et al.

While Gavalda et al. appears to show some type of parse in FIG. 4, there is no teaching or suggestion, whatsoever, that the user can alter that parse. Instead, as shown in FIG. 5, the system asks the user questions about the input utterance, and then the system, itself, regenerates a parse as shown in FIG. 6 of Gavalda et al. This is much more cumbersome and time consuming than simply allowing the user to directly correct the parse directly.

Independent claim 17 is directed to a method of building a learned context free grammar that includes generating

a semantic schema, obtaining a template CFG, receiving a training expression, "obtaining an annotated expression by receiving a user annotation input annotating the training expression directly against the semantic schema to provide at least one anchor point that is a known correct alignment between a portion of the training expression and the template CFG..." parsing the annotated expression, and building the learned CFG based on the parse result. In order to meet the quoted language, the Examiner again cited §3.2.1 of Gavalda et al. In doing so, it appears that the Examiner has relied upon the sentence "acquiring a new mapping from an unparsed sequence of words into its desired semantic representation involves the following steps."

However, the steps that follow only interact with the user by, as discussed above, asking the user questions about the original utterance, or rephrasing the utterance. There is no teaching or suggestion, whatsoever, that an annotated expression can be obtained by receiving a user annotation input that annotates the training expression directly against the semantic schema in order to provide an anchor point. There is simply no way in Gavalda et al. for the user to directly annotate the input utterance (or training expression) against the semantic schema. Since this is neither taught nor suggested by Gavalda et al., and therefore Gavalda et al. cannot render the claim obvious.

The Examiner cited the same language in Gavalda et al. for rejecting independent claim 20. Claim 20 is a system for developing a domain-specific CFG, that includes a template grammar generator that receives a semantic schema and generates a template grammar, "an annotation interface receiving a user annotation input indicative of a user designated anchor point that is an alignment of at least a portion of a training expression with the semantic schema;" a parser that parses the training expression that complies with the anchor point input by the user and a learner that learns the domain-specific CFG based on the parse result. Again, Gavalda et al. simply fails to teach

or suggest these features. There is no way for Gavalda et al. to allow a user to directly designate an anchor point that is an alignment of at least a portion of the training expression with the semantic schema. Such an interface is simply not provided by Gavalda et al. Therefore, Applicant submits that independent claim 20 is allowable.

The Examiner similarly rejected claim 25, which is a method of generating a context free grammar that includes "annotating a training expression against an abstraction of the template CFG, with one or more anchor points aligning portions of the training expression with preterminals in the CFG...". This type of annotation is simply not done in Gavalda et al. There is no way, in Gavalda et al., for the user to annotate a training expression against an abstraction of the template CFG. Thus, Applicant submits that independent claim 25 is allowable.

In rejecting claim 32, the Examiner again cited §3.2.1 of Gavalda et al., and the Examiner took Official Notice that displaying a semantic representation to the user is well know in the art. Applicant respectfully traverses the Examiner's rejection, and specifically traverses the Examiner's taking of Official Notice.

While displaying semantic representations of some type to a user may be well known, "displaying a schema of the application domain instead of the CFG" in the context of claim 32, is neither well known nor is it taught or suggested by any of the references cited by the Examiner.

Similarly, Gavalda et al. simply fails to teach or suggest "receiving a user input directly annotating a training expression against the schema instead of the template CFG...". Nor does Gavalda et al. teach that such annotation identifies one or more points of alignment between the training expression and the template CFG. Gavalda et al. also fails to teach "parsing the training expression with the template CFG to provide a parse result that complies with the points of alignment; learning

alignments of the training expression with the CFG; and adding CFG rules to the template CFG to reflect the learning alignments."

Because Gavalda et al. does not teach or suggest displaying a schema of the application domain instead of the CFG, receiving a user input directly annotating a training expression against the schema instead of the template CFG, and identifying one or more points of alignment between the training expression (and the CFG based on the annotation) it cannot teach the steps of parsing, learning, and adding CFG rules as claimed. Therefore, Applicant respectfully submits that independent claim 32 is allowable.

Applicant also submits that a number of the dependent claims are independently allowable. For instance, dependent claim 12 specifically claims that a user can drag and drop incorrectly aligned portions to their proper places in the abstraction of the parse results. This is simply neither taught nor suggested by the references in this type of environment for building a learned context free grammar. While Applicant admits that dragging and dropping items on a user interface display is old, dragging and dropping incorrectly aligned portions of a training expression relative to an abstraction of a parse result in order to correct the parse result is neither taught nor suggested by any of the references cited by the Examiner.

Further, Applicant submits that claim 13 is independently allowable. The Examiner took Official Notice with respect to claim 13, and Applicant specifically traverses that Official Notice. While "reprocessing data" may be known, re-parsing a training expression to produce a new parse result that complies with anchor points and displaying a new abstraction of that new parse result is neither known nor is it taught or suggested by any of the references cited by the Examiner. Therefore, Applicant traverses the Examiner's Official Notice with respect to claim 13.

Applicant also submits that dependent claim 14 is independently allowable. Claim 14 allows a user to quickly associate a pre-existing library grammar with the template grammar. This provides significant advantages in that it allows the learned CFG to draw on a pre-existing library grammar simply by allowing the user to associate the two grammars with one another. This is not known, nor is it taught or suggested by the references cited by the Examiner. Therefore, Applicant traverses the Examiner's Official Notice and submits that claim 14 is independently allowable.

Similarly, Applicant submits that claim 15 is independently allowable. In rejecting the claim, the Examiner took Official Notice that "having multiple grammars for multiple users is notoriously well known in the art." However, this has little, if anything, to do with claim 15. Claim 15 claims "selecting one of a plurality of available library grammars; and operating the selected library grammar in a generative mode to generate at least one example of an expression supported by the selected library grammar." This allows the grammar author to quickly see an example supported by the grammar to determine whether the author wishes to incorporate the library grammar. This is neither taught nor suggested by the references, nor is it well known. Therefore, Applicant submits that dependent claim 15 is allowable.

The Examiner also took Official Notice in rejecting claims 21 and 22. For the same reasons as with respect to claims 14 and 15, Applicant traverses the Examiner's Official Notice and submits that claims 21 and 22 are allowable as well.

In conclusion, Applicant submits that independent claims 1, 17, 20, 25 and 32 are allowable. Applicant also submits that dependent claims 7-9, 11-16, 18-19, 21-24, and 26-31 are allowable both by virtue of the their dependence on allowable independent claims, and because they are independently allowable.

Applicant thus respectfully requests reconsideration and allowance of claims 1, 7-9, and 11-32.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: _____

Joseph R. Kelly, Reg. No. 34,847
Suite 1400 - International Centre
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

JRK:slg